High Blood Pressure

Definition: High blood pressure is a long-term increase in blood pressure above the normal range, defined as a systolic blood pressure at or above 140 mm Hg (millimeters of mercury) and, or a diastolic blood pressure at or above 90 mm Hg. Also known as hypertension.
Screening is done by health care providers using an inflatable cuff and stethoscope to measure the blood pressure, usually in the arm.

Summary

High blood pressure doubles the risk of dying from heart disease and triples the risk of dying from stroke. Nearly one in five Americans has high blood pressure. Regular screening for high blood pressure and appropriate treatment and control efforts play an important role in prevention of hypertension-related morbidity and mortality.

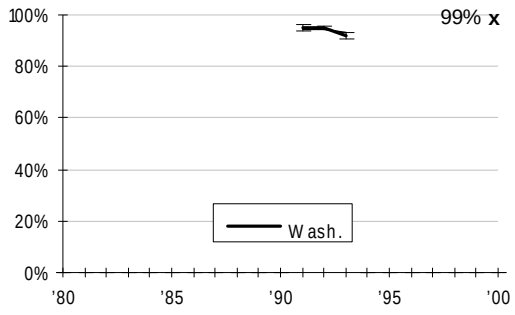
Public health approaches to the primary prevention of high blood pressure include public education, changes in the food industry and food preparation practices as well as education and support for prevention activities by health care providers. These approaches focus on promoting efforts to increase physical activity, control weight, decrease salt intake, moderate alcohol intake and decrease tobacco use.

Time Trends

Data for Washington State show a very high proportion of adults reporting having had their blood pressure checked within the preceding two years. While direct comparison rates are available only for 1991, U.S. rates appear a good deal lower. This may be due in part to differences in the survey instruments and methods used to obtain the two sets of data.

U.S. screening rates for hypertension rose dramatically in late 1970's and early 1980's following the inception of the National High Blood Pressure Education Program (NHBPEP). [1]

Blood Pressure Checks
Percent of adults having had blood pressure checked in past 2 years



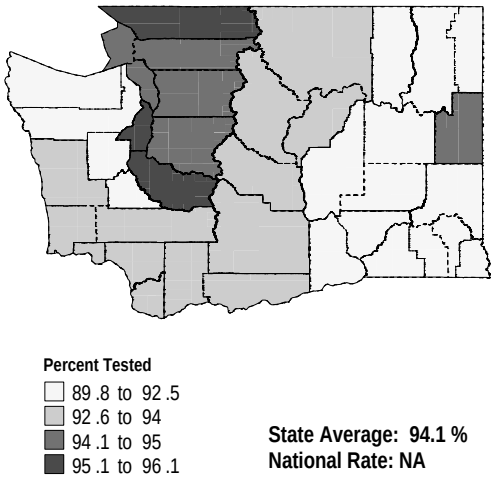
Year 2000 Goal

Washington has set a Year 2000 goal of 99% for the proportion of adults who have had their blood pressure measured within the preceding two years. In 1993, the most recent year for which data are available, this proportion was 92.1% (±1.1).

Two related *Healthy People 2000* goals apply to people with diagnosed hypertension: 1) increase to 50% the proportion of people with hypertension who have their blood pressure under control; and 2) increase to 90% the proportion of people who know they have hypertension who are taking action to control their blood pressure. The most recent available national data put these figures at 21% and 80%, respectively.

National physical examination data from 1988-1991 showed that only 65% of persons with a blood pressure measurement of 140/90 mm HG or greater were aware they had a problem; and only 49% of aware hypertensives aged 18 and older were receiving treatment. No data on any of

Adults Receiving a Blood Pressure Test
Percentage by Region, 1991-1993



State Average: 94.1 %
National Rate: NA

these measures related to awareness and control of high blood pressure are available for Washington.

Geographic Variation

The map on the previous page displays 1991-1993 data on the proportion of persons screened for high blood pressure in the previous two years by region around the state. The lowest proportion was 89.8% (±4.7), found in the region comprised of Asotin, Columbia, Garfield, Walla Walla, and Whitman Counties. Kitsap county, at 96.1% (±2.3), had the highest proportion. These differences are not statistically significant, however.

Nationally, 19% of Americans have high blood pressure. It is estimated that 50 million people had high blood pressure in 1991, down from 60 million a decade before.[2] Washington data from 1993 found 21.8% (±1.7) of adults reporting having been told by a health care provider that they had high blood pressure. The reliability of this measure as an estimate of hypertension prevalence is uncertain. This would suggest, however, that high blood pressure is more common in Washington than might be expected. The relatively high stroke death rate in Washington lends support to this possibility**.** (See the Stroke section of this document for further discussion.)

Age and Gender

Males in Washington surveyed in 1993 were somewhat less likely to report a blood pressure check in the previous two years (89.0%) than females (95.2). This difference is notable mainly among individuals under age 45. Rates of blood pressure screening are quite consistent across age groups.

The prevalence of hypertension, however, goes up sharply with age. Among Americans over age 65 in all racial groups and both sexes hypertension prevalence exceeds 50%. Hypertension is less common in women than men in younger age groups, while in older age groups women have slightly higher prevalence. Women with hypertension have higher long term survival rates than men, however.[3] Women tend to make more frequent physician office visits and to be more compliant with therapy, contributing to better control of hypertension among women.

Race and Ethnicity

Data limitations preclude analysis of high blood pressure screening rates for individual racial and ethnic minority groups. In 1993 the proportion of Caucasians reporting a blood pressure check in the prior two years was essentially the same as that for non-Caucasians. Real differences in screening frequency among racial and ethnic groups may exist, however.

Nationally, hypertension prevalence is higher for African American men and women in all age groups. African Americans tend to develop hypertension at a younger age than Caucasians and have twice the incidence of high blood pressure.

Income and Education

In 1993 Washington data, persons with higher incomes are more likely to have had their blood pressure checked within the last two years. Among individuals with household incomes over $20,000, 93.5% reported a recent check, compared with 88.2% among less affluent people.

Hypertension is more common in adults with lower income and education levels. Washington data show 30.1% of persons who left school after eighth grade reporting high blood pressure, compared with 19.8% among those who attended at least some college.

Health Effects and Treatment

Hypertension is a powerful risk factor for coronary heart disease (CHD) and stroke. The presence of hypertension doubles an individual's risk for CHD and triples the risk for stroke. About 30 percent of stroke deaths and 17 percent of heart disease deaths are attributable to this risk factor. High blood pressure also increases the risk for other diseases, such as peripheral vascular disease and, particularly in combination with diabetes mellitus, kidney failure. Reduction of the U.S. average systolic blood pressure by 5 mm Hg, would result in a 9% decrease in CHD deaths, a 14% drop in stroke deaths and a 7% reduction in all cause mortality.[4]

High blood pressure is first treated through lifestyle changes, which alone may effectively control blood pressure in many people. Lifestyle interventions focus on weight control through decreased fat and calorie intake along with increased physical activity, smoking cessation, decreased sodium (salt) intake, and decreased alcohol intake. Drug therapy is indicated when

behavior changes have not controlled high blood pressure or when life-threatening levels occur.

Barriers and Motivators

Hypertension is often known as the "silent killer" since people with high blood pressure frequently have no symptoms until permanent damage to their heart, blood vessels and other target organs has occurred. This presents unique challenges to motivating people with this risk factor to comply with the lifestyle changes and drug therapies which are prescribed to control high blood pressure.

For individuals on drug therapy, the cost and side effects of such therapy impact compliance with taking medications. However, even when these issues are addressed, significant numbers of individuals with high blood pressure are still not compliant with therapy. Additional research could provide more information in this area.

Associated Factors

The strongest and most consistent predictors of hypertension, across racial and gender groups, are older age, lower level of education and obesity. High blood pressure is also associated with a diet high in sodium and low in potassium, cigarette smoking, high alcohol intake, physical inactivity and a family history of hypertension.

Groups of Particular Interest

African Americans. This population has much higher rates of hypertension than the general population. A combination of genetically determined and socioeconomic factors probably contribute to the increased prevalence in this population.

People with high normal blood pressure. High normal blood pressure, defined as a systolic pressure of 130-139 mm Hg and a diastolic of 85-89 mm Hg, is the single best prognostic indicator that an individual will develop high blood pressure. Therefore, special efforts are needed to prevent the development of high blood pressure in this group, including more frequent screening.

Family History of high blood pressure. A history of high blood pressure in close relatives significantly predicts the future onset of hypertension.

People with one or more lifestyle risk factors which contribute to age-related increases in blood pressure. Persons with high blood pressure and additional risk factors, such as physical inactivity, cigarette smoking, alcohol abuse, and elevated blood cholesterol, are at particularly increased risk for coronary heart disease and stroke. These risk factors need to be addressed as well.

Children. Primary prevention of hypertension-related disease is most effective if it begins in childhood. In children and adolescents, screening is recommended once a year, starting at age three.[5]

Intervention Points, Strategies and Effectiveness

Early detection and treatment of high blood pressure, including identification and monitoring of people with "high normal" levels is a fundamental strategy. While most people in Washington state have had their blood pressure measured, they may not be aware that their blood pressure is high. Screening programs are of most value for high risk and underserved populations, among whom screening rates are lower and hypertension prevalence higher. Since most people have now had their blood pressure screened, current activities emphasize treatment and control of high blood pressure among those already identified as having this risk factor.

The National High Blood Pressure Education Program has developed a comprehensive, population-based approach to hypertension. The program is designed to simultaneously influence individuals, health care professionals, social norms, and the medical care system to enhance detection and control of high blood pressure. This approach incorporates community-based programs, provider education and support, and a nationwide media campaign.

Community programs with demonstrated effectiveness have provided access to services for detection, education and referral for multiple risk factors in addition to hypertension. They utilize multiple strategies to improve treatment adherence, deliver services at multiple sites, involve the media in promotion of activities, and target multiple groups within the community.

Community screening for hypertension should be convenient for clients, conducted in a culturally sensitive manner and targeted to populations most likely to develop high blood pressure and those with limited access to medical care. Such

programs may also assist in monitoring progress and promoting adherence of individuals already being treated for hypertension. Community based programs foster local ownership of and responsibility for prevention programs.

Education and support of health care providers is another component of the NHBPEP. Guidelines for prevention, detection and treatment of hypertension and client education materials are some of the supports offered. Additional work is needed to develop and implement planned preventive care services in all primary care settings. Use of defined treatment protocols and reinforcement of the importance of treatment through activities such as telephone calls, intensive counseling and regular primary care provider follow-up visits have been shown to increase regimen adherence and hypertension control.[6] Changes in medical care reimbursement policies and in health care system organization could support the development of more efficient systems for the delivery of preventive care.

A national campaign to promote foods that are lower in sodium and calorie content and higher in potassium content , moderation in alcohol consumption, and increased physical activity is another component of the NHBPEP. The Stanford Five Cities Project has shown that a community campaign utilizing extensive media, coupled with other public education efforts, can promote behavior change and risk factor reduction.[7] The NHBPEP encourages the development of state and local prevention activities consistent with its approach. Evaluation of the national effort is underway. Careful assessment of the impact of local programs will be necessary to assure the quality and effectiveness of the services provided.

See related sections on Coronary Heart Disease, , High Blood Cholesterol, Nutrition, Physical Inactivity , Stroke, and Tobacco Control and Exposure.

Data Sources

State survey data: Washington State Department of Health. Behavioral Risk Factor Surveillance System (BRFSS).

National survey data: National Health Interview Survey (NHIS) and National Health and Nutrition Examination Survey (NHANES III), National Center for Health Statistics.

For More Information

Washington Department of Health, Heart Health Program (360) 586-6091.

References

Washington Department of Health. Washington State Heart Disease and Stroke Prevention Plan. WSDOH, Olympia, WA. 1995.

US Department of Health and Human Services. "Healthy People 2000 Midcourse Review and 1995 Revisions." USDHHS, Bethesda, MD. 1995.

National Center for Health Statistics. "Healthy People 2000 Review, 1994." Public Health Service, Hyattsville, MD. 1995.

Endnotes:

[1] US National Heart, Lung and Blood Institute, National High Blood Pressure Education Program. The Fifth Report of the Joint National Committee on Detection, Evaluation and Treatment of High Blood Pressure (JNC V), Washington, D.C. US Department of Health and Human Services NIH 93-1088. Summary in: Arch. Internal Medicine 1993; 153:154-183.

[2] Ibid.

[3] Izzo J.L, and Black HR, Eds. Hypertension Primer. Dallas, TX. American Heart Association, 1994.

[4] Pearson T, Criqui M, Luepker R., Oberman A, Winston M Eds. Primer in Preventive Cardiology. Dallas, TX, American Heart Association, 1994.

[5] US Public Health service, Office of Disease Prevention and Health Promotion. Clinician's Handbook of Preventive Services. US Department of Health and Human Services, Superintendent of Documents, Mail Stop: SSOP, WA, DC 20402-9328, 1994.

[6] US National Heart, Lung and Blood Institute, National High Blood Pressure Education Program. The Fifth Report of the Joint National Committee on Detection, Evaluation and Treatment of High Blood Pressure (JNC V), Washington, D.C. US Department of Health and Human Services NIH 93-1088.

[7] US National Heart, Lung and Blood Institute, National High Blood Pressure Education Program. Working Group Report on the Primary Prevention of Hypertension. Washington, D.C. US Department of Health and Human Services. NIH 93-92669. 1993 and Arch. Intern Med 153:186-208, 1993..